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EXAMINER	
MORRISON, THOMAS A	
ART UNIT	PAPER NUMBER
3653	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,525	SAITO, HIROYUKI	
	Examiner	Art Unit	
	Thomas A. Morrison	3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11 and 13-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-11 and 13-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05/15/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The substitute specification filed on 5/15/2006 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 5, 6/2, 6/5, 17-19 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,390,700 (Foster et al.).

Regarding claim 1, Figs. 3-5B of the Foster et al. patent show a conveying apparatus (110) comprising:

a conveyance roller (128);

a driven roller (132) rotating as driven from the conveyance roller (128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (128);

a bearing (Fig. 5B) for supporting the conveyance roller (128);

driving means (column 4, lines 34-36) for rotating the conveyance roller (128); and

drive transmitting means (120), wherein the bearing (Fig. 5b) includes two contact portions for contacting the circumference of a spindle (126a) for supporting the conveyance roller (128), and wherein the bearing (Fig. 5B) supports the conveyance roller (128) so as to locate a direction perpendicular to a line coupling the two contact portions within a range of vector directions of varying exertion forces exerted on the bearing when the conveyance roller is (128) is stopped and when the conveyance roller is rotating. In as much as the bearing structure of the Foster et al. patent has the same geometry as that of the instant application, the bearing of the Foster et al. patent will perform the recited function of claim 1.

Regarding claim 2, Fig.5B shows that the direction perpendicular to the line coupling the two contact portions coincides with a combined vector direction of a vector direction of an exerting force exerted on the bearing (Fig. 5B) when the conveyance roller (128) is stopped and a vector direction of an exerting force furthest from the exerting force exerted on the bearing (Fig. 5B) when the conveyance roller (128) is stopped or the direction perpendicular to the line coupling the two contact portions is located closer to the vector direction of the exertion force at the time the conveyance roller (128) is stopped than to the combined vector direction. Again, in as much as the geometry of the bearing structure of the Foster et al patent is the same as that of applicant's, such claimed vector arrangement will occur in the Foster apparatus.

Regarding claim 5, Fig. 4 shows that the bearing supports the spindle (126A and 126B) at both sides of the conveyance roller (128).

Regarding claim 6/2 and 6/5, Fig. 5B shows that the two contact portions are in a plane.

Regarding claim 17, Figs. 3-5B show a recording apparatus for forming images on a recording medium, comprising:

a conveyance roller (including 126a and 128) for conveying the recording medium;

a driven roller (132) rotating as driven from the conveyance roller (including 126a and 128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (including 126a and 128); and

a bearing (Fig. 5B) for supporting the conveyance roller (including 126a and 128), wherein the bearing (Fig. 5B) is in contact with an outer peripheral surface (outer surface of 126a) of the conveyance roller (including 126a and 128) and includes two contact portions (Fig. 5B) disposed in parallel to an axial direction of the conveyance roller (including 126a and 128), and wherein a direction perpendicular to a line coupling the two contact portions (Fig. 5B) is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (including 126a and 128), within a range of vector directions of varying exertion forces exerted on the bearing (Fig. 5B) when the

conveyance roller (including 126a and 128) is stopped and when the conveyance roller (including 126a and 128) is rotating. In as much as the geometry of the bearing (Fig. 5B) of the Foster et al patent is the same as that of the instant application, the bearing (Fig. 5B) of the Foster et al. patent has the vector limitations as claimed.

Regarding claim 18, Figs. 3-5B show that the direction perpendicular to the line coupling the two contact portions (Fig. 5B) is located between a combined vector direction of a vector direction of an exerting force exerted on the bearing (Fig. 5B) when the conveyance roller (including 126a and 128) is stopped and a vector direction of an exerting force furthest from the vector direction of the exertion force at the time the conveyance roller (including 126a and 128) is stopped. Again, the geometry of the bearing is the same as that of the bearing of the instant application. Thus, limitations are met.

Regarding claims 19, Fig. 5B shows that the two contact portions are in a plane.

Regarding claim 27, Figs. 3-5B show a recording apparatus for forming images on a recording medium, comprising:

a conveyance roller (including 126a and 128) for conveying the recording medium;

a driven roller (132) rotating as driven from the conveyance roller (including 126a and 128);

pressing means (130) for pressing the driven roller (132) to the conveyance roller (including 126a and 128); and

a bearing (Fig. 5B) for supporting the conveyance roller (including 126a and 128), wherein the bearing (Fig. 5B) is in contact with an outer peripheral surface of the conveyance roller (outer surface of 126a) and includes two contact portions disposed in parallel with an axial direction of the conveyance roller (including 126a and 128), and wherein a direction perpendicular to a line coupling the two contact portions is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (including 126a and 128), to correspond with a combined vector of an exerting force at a state of stopping and an exerting force at a state of starting the conveyance roller (including 126a and 128).

3. Claims 1-2, 5, 6/2, 6/5, 7-10, 13- 14, 15/10, 15/13,15/14, 16/15/10, 16/15/13, 16/15/14 and 17-27 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,769,683 (Hiramatsu).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Figs. 1 and 3-4 of the Hiramatsu patent show a conveying apparatus (50) comprising:

a conveyance roller (14);

a driven roller (21) rotating as driven from the conveyance roller (14);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (14);

a bearing (20) for supporting the conveyance roller (14);

driving means (9) for rotating the conveyance roller (14); and

drive transmitting means (i.e., gear near numeral 9), wherein the bearing (20) includes two contact portions (20c) for contacting the circumference of a spindle (14a) for supporting the conveyance roller (14), and wherein the bearing (20) supports the conveyance roller (14) so as to locate a direction perpendicular to a line coupling the two contact portions (20c) within a range of vector directions of varying exertion forces exerted on the bearing when the conveyance roller is (14) is stopped and when the conveyance roller is rotating. In as much as the bearing structure of the Hiramatsu patent has the same geometry as that of the instant application, the bearing of the Hiramatsu patent will perform the recited function of claim 1.

Regarding claim 2, Figs.1 and 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) coincides with a combined vector direction of a vector direction of an exerting force exerted on the bearing (20) when the conveyance roller (14) is stopped and a vector direction of an exerting force furthest from the exerting force exerted on the bearing (20) when the conveyance roller (14) is

stopped or the direction perpendicular to the line coupling the two contact portions is located closer to the vector direction of the exertion force at the time the conveyance roller (14) is stopped than to the combined vector direction.

Regarding claim 5, column 4, line 66 to column 5, line 4 and column 5, lines 47-49 disclose that the bearing (20) supports the spindle (14a) at both sides of the conveyance roller (14).

Regarding claim 6/2 and 6/5, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 7, Figs. 1 and 3-4 show a conveying apparatus comprising:

a conveyance roller (14);

a driven roller (21) rotating as driven from the conveyance roller (14);

pushing means (22) for pushing the driven roller (21) to the conveyance roller (14);

a bearing (20) for supporting the conveyance roller (14);

a chassis (Fig. 1) for supporting the conveyance roller (14);

driving means (9) for rotating the conveyance roller (14); and

drive transmitting means (i.e., gear near numeral 9 in Fig. 1), wherein the chassis (Fig. 1) includes two contact portions for supporting the circumference of the bearing (20), and wherein the chassis (Fig. 1) supports the bearing (20) as to locate a direction

perpendicular to a line coupling the two contact portions within a range of vector directions of varying exertion forces exerted on the bearing when the conveyance roller (14) is stopped and when the conveyance roller is rotating. Fig. 1 shows one of the bearings (20) installed in the chassis such that the chassis surrounds the bearing. As such, there are at least two contact portions, as claimed. With the geometry of the bearing (20) of the Hiramatsu patent being the same as that of the instant application, the bearing of the Hiramatsu patent will have the vector limitations as claimed.

Regarding claim 8, Figs. 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) coincides with a combined vector direction of a vector direction of an exerting force exerted on the bearing (20) when the conveyance roller (14) is stopped and a vector direction of an exerting force furthest from the exerting force exerted on the bearing (20) when the conveyance roller (14) is stopped or the direction perpendicular to the line coupling the two contact portions is located closer to the vector direction of the exertion force at the time the conveyance roller (14) is stopped than to the combined vector direction.

Regarding claims 9, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 10, Figs. 1 and 3-4 show a conveying apparatus comprising:

a conveyance roller (14);

a driven roller (21) rotating as driven from the conveyance roller (14);

pushing means (22) for pushing the driven roller (21) to the conveyance roller (14);

a bearing (20) for supporting the conveyance roller (14);

a chassis (Fig. 1) for supporting the conveyance roller (14);

driving means (9) for rotating the conveyance roller (14); and

drive transmitting means (i.e., the gear near numeral 9 in Fig. 1), wherein the bearing (20) includes two contact portions (20c) for contacting the conveyance roller (14), wherein the chassis (Fig. 1) includes two contact portions for supporting the circumference of the bearing (20), wherein the bearing (20) supports the conveyance roller (14) so as to locate a direction perpendicular to a line coupling the two contact portions (20c) of the bearing (20) within a range of vector directions of varying exertion forces exerted on the bearing (20) when the conveyance roller (14) is stopped and when the conveyance roller (14) is rotating, and wherein the chassis (Fig. 1) supports the bearing (20) so as to locate a direction perpendicular to a line coupling the two contact portions of the chassis within a range of vector directions of exertion forces exerted on the bearing (20) when the conveyance roller (14) is stopped and when the conveyance roller (14) is rotating. In particular, the bearing supports the entire conveyance roller (14). As such, the bearing (20) supports the circumference of the conveyance roller (14). Fig. 1 shows one of the bearings (20) installed in the chassis such that the chassis surrounds the bearing. As such, there are at least two contact portions, as claimed. With the geometry of the bearing structure (20) of the Hiramatsu

patent being the same as that of the instant application, the bearing (20) of the Hiramatsu patent will have the vector limitations as claimed.

Regarding claim 13, column 4, line 66 to column 5, line 4 and column 5, lines 47-49 and Figs. 3-4 disclose that the conveyance roller (14) has a spindle (14a) supported by the bearing (20) and a roller portion (outer surface of roller in Figs. 3-4) for conveying performance, and the bearing (20) supports the spindle (14a) at both sides of the conveyance roller (14).

Regarding claim 14, Figs. 1 and 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) of the bearing (20) and the direction perpendicular to the line coupling the two contact portions of the chassis (Fig. 1) coincide with a combined vector direction of vector directions of exerting forces exerted on the bearing (20) and the chassis (Fig. 1) when the conveyance roller (14) is stopped and vector directions of exerting forces furthest from the exerting forces exerted on the bearing (20) and the chassis (Fig. 1) when the conveyance roller (14) is stopped, or the direction perpendicular to the line coupling the two contact portions of the bearing and the direction perpendicular to the line coupling the two contact portions of the chassis are located closer to the vector directions of the exertion forces at the time the conveyance roller (14) is stopped than to the combined vector direction.

Regarding claims 15/10, 15/13 and 15/14, Figs. 1 and 3-4 show that the two contact portions of the bearing (20) are in a plane and the two contact portions of the chassis (Fig. 1) are in a plane.

Regarding claims 16/15/10, 16/15/13 and 16/15/14, Figs. 1 and 3-4 show that a contact portion of the bearing (20) and a contact portion of the chassis (Fig. 1) are located on a same line passing through the center of the conveyance roller (14). Again, the chassis surrounds the bearing, so it has at least two contact points that meet the limitations. Also, the bearing (20) has the same geometry as that of the instant application. Thus, the bearing (20) also meets the limitations.

Regarding claim 17, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

a conveyance roller (including 14 and 14a) for conveying the recording medium;

a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (including 14 and 14a); and

a bearing (20) for supporting the conveyance roller (including 14 and 14a), wherein the bearing (20) is in contact with an outer peripheral surface (outer surface of 14a) of the conveyance roller (including 14 and 14a) and includes two contact portions (20c) disposed in parallel to an axial direction of the conveyance roller (including 14 and 14a), and wherein a direction perpendicular to a line coupling the two contact portions (20c) is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (including 14 and 14a), within a range of vector directions of varying exertion forces exerted on the bearing (20) when the conveyance roller (including 14

and 14a) is stopped and when the conveyance roller (including 14 and 14a) is rotating. In as much as the geometry of the bearing (20) of the Hiramatsu patent is the same as that of the instant application, the bearing (20) of the Hiramatsu patent has the vector limitations as claimed.

Regarding claim 18, Figs. 1 and 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) is located between a combined vector direction of a vector direction of an exerting force exerted on the bearing (20) when the conveyance roller (including 14 and 14a) is stopped and a vector direction of an exerting force furthest from the vector direction of the exertion force at the time the conveyance roller (including 14 and 14a) is stopped.

Regarding claims 19, Figs. 1 and 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 20, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

a conveyance roller (14) for conveying the recording medium;

a driven roller (21) rotating as driven from the conveyance roller (14);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (14);

a bearing (20) for supporting the conveyance roller (14); and

a chassis (Fig. 1) for supporting the bearing (20), wherein the chassis (Fig. 1) is in contact with an outer peripheral surface of the bearing (20) and includes two contact portions disposed in parallel to an axial direction of the bearing (20), and wherein a direction perpendicular to a line coupling the two contact portions is located, in an arbitrary cross-section perpendicular to the axial direction of the bearing (20), within a range of vector directions of varying exertion forces exerted on the bearing (20) when the conveyance roller (14) is stopped and when the conveyance roller is rotating. In particular, Fig. 1 shows one of the bearings installed in the chassis. The chassis appears to surround the bearing (20) and contact the bearing (20) at multiple contact points around the circumference of the bearing (20). As such, at least two of these contact portions on the chassis are positioned such that they meet the requirements set forth in claim 20.

Regarding claim 21, Figs. 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) is located between a combined vector direction of a vector direction of an exerting force exerted on the bearing (20) when the conveyance roller (14) is stopped and a vector direction of an exerting force furthest from the vector direction of the exertion force at the time the conveyance roller (14) is stopped.

Regarding claim 22, Figs. 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 23, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

a conveyance roller (14 and 14a) for conveying the recording medium;

a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

pushing means (22) for pushing the driven roller (21) to the conveyance roller (including 14 and 14a);

a bearing (20) for supporting the conveyance roller (including 14 and 14a); and

a chassis (Fig. 1) for supporting the bearing (20), wherein the bearing (20) is in contact with an outer peripheral surface of the conveyance roller (outer surface of 14a) and includes two contact portions (near 17 in Fig. 1) disposed in parallel to an axial direction of the conveyance roller (including 14 and 14a), wherein the chassis (Fig. 1) is in contact with an outer peripheral surface (see Fig. 1) of the bearing (20) and includes two contact portions disposed in parallel to an axial direction of the bearing (20), wherein a direction perpendicular to a line coupling the two contact portions (20c) of the bearing (20) is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (including 14 and 14a), within a range of vector directions of varying exertion forces exerted on the bearing (20) when the conveyance roller (including 14 and 14a) is stopped and when the conveyance roller (including 14 and 14a) is rotating, and wherein a direction perpendicular to a line coupling the two contact portions (Fig. 1) of the chassis is located, in an arbitrary cross-section perpendicular to

the axial direction of the bearing (20), within a range of vector directions of varying exertion forces exerted on the bearing (20) when the conveyance roller (including 14 and 14a) is stopped and when the conveyance roller (including 14 and 14a) is rotating. Again, the chassis surrounds the bearing (20) in Fig. 1. As such, there are at least two contact points that meet the limitations as claimed.

Regarding claim 24, Figs. 1 and 3-4 show that the direction perpendicular to the line coupling the two contact portions (20c) of the bearing (20) and the direction perpendicular to the line coupling the two contact portions (Fig. 1) of the chassis are located between a combined vector direction of vector directions of exerting forces on the bearing (20) and the chassis (Fig. 1) when the conveyance roller (including 14 and 14a) is stopped and vector directions of exerting forces further from the exerting forces exerted on the bearing (20) and chassis (Fig. 1) when the conveyance roller (including 14 and 14a) is stopped.

Regarding claim 25, Figs. 1 and 3-4 show that the two contact portions (20c) of the bearing (20) are in a plane and the two contact portions (Fig. 1) of the chassis are in a plane.

Regarding claim 26, Figs. 1 and 3-4 show that a contact portion (20c) of the bearing (20) and a contact portion (Fig. 1) of the chassis are located on a same line passing through the center of the conveyance roller (including 14 and 14a).

Regarding claim 27, Figs. 1 and 3-4 show a recording apparatus (50) for forming images on a recording medium, comprising:

a conveyance roller (including 14 and 14a) for conveying the recording medium;

a driven roller (21) rotating as driven from the conveyance roller (including 14 and 14a);

pressing means (22) for pressing the driven roller (21) to the conveyance roller (including 14 and 14a); and

a bearing (20) for supporting the conveyance roller (including 14 and 14a), wherein the bearing (20) is in contact with an outer peripheral surface of the conveyance roller (outer surface of 14a) and includes two contact portions (20c) disposed in parallel with an axial direction of the conveyance roller (including 14 and 14a), and wherein a direction perpendicular to a line coupling the two contact portions (20c) is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (including 14 and 14a), to correspond with a combined vector of an exerting force at a state of stopping and an exerting force at a state of starting the conveyance roller (including 14 and 14a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3 and 6/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,390,700 (Foster et al.).

With regard to claim 3, the Foster et al. patent discloses the claimed invention except for the diameter of the spindle (126a) being the same as the diameter of the conveyance roller (128). It would have been an obvious matter of design choice to select the diameter of the spindle (126a) to be the same as the diameter of the conveyance roller (128), since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). One of ordinary skill in the art would have been motivated to select a diameter of the spindle (126a) to be the same as that of the conveyance roller (128) in order to reduce the amount of machining and/or finishing required for the roller and spindle, which reduces the manufacturing cost.

With regard to claim 6/3, Fig. 5B shows that the two contact portions are in a plane.

5. Claims 3, 6/3, 11, 15/11 and 16/15/11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,769,683 (Hiramatsu).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed

in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

With regard to claims 3 and 11, the Hiramatsu et al. patent discloses the claimed invention except for the diameter of the spindle (14a) being the same as the diameter of the conveyance roller (14). It would have been an obvious matter of design choice to select the diameter of the spindle (14a) to be the same as the diameter of the conveyance roller (14), since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). One of ordinary skill in the art would have been motivated to select a diameter of the spindle (14a) to be the same as that of the conveyance roller (14) in order to reduce the amount of machining and/or finishing required for the roller and spindle, which would reduce the manufacturing cost.

With regard to claim 6/3, Figs. 1 and 3-4 show that the two contact portions (20c) are in a plane.

Regarding claim 15/11, Figs.1 and 3-4 show that the two contact portions of the bearing (20) are in a plane and the two contact portions of the chassis (Fig. 1) are in a plane.

Regarding claims 16/15/11, Figs. 1 and 3-4 show that a contact portion of the bearing (20) and a contact portion of the chassis (Fig. 1) are located on a same line passing through the center of the conveyance roller (14). Again, the chassis surrounds the bearing, so it has at least two contact points that meet the limitations.

Response to Arguments

6. Applicant's arguments filed 05/15/2006 have been fully considered but they are not persuasive. Applicant argues that

> Foster et al. is directed to a bearing in an imaging apparatus including a first bearing surface 146 and a second bearing surface 152, each having an arcuate cross-section. The two bearing surfaces together form a concave shape for receiving cylindrical shaft surface 126A of feed roller shaft 124. The two bearing surfaces are symmetrical with respect to plane of symmetry 160, which may be arranged to be vertical. A direction perpendicular to a line coupling to contact portions of the bearing surfaces and shaft 124 could be on the plane of symmetry 160. However, Applicant submits that Foster et al. does not describe the position or the direction in which back up rollers 132 contact and apply the pressing force to the feed rollers provided on the feed roller shaft 124. Therefore, the relation of a vector direction of forces exerted on the bearing when the conveyance roller is stopped and a direction perpendicular to a line coupling the two contact portions cannot be determined in Foster et al. Moreover, Applicant submits that the vector directions of forces exerted on the bearing change from when the roller is in the stopped state and when it starts rotating. Therefore, it is uncertain as to whether the direction perpendicular to the line coupling the two contact portions stays within this range of change. Therefore, even if there are similarities in the structure of the bearing in Foster et al. and that of the claimed invention, the overall claimed invention does not necessarily flow from Foster et al. Accordingly, Foster et al. fails to disclose or suggest at least that the bearing (or chassis) supports the conveyance roller (or bearing) so as to locate a direction perpendicular to a line coupling the two contact portions

within a range of vector directions of varying exertion forces exerted on the bearing when the conveyance roller is stopped and when the conveyance roller is rotating, as is recited in independent Claims 1, 7 and 10.

In response, it is noted that at least part of the force from the rollers 132 onto the roller shaft 124 is applied in a downward direction. This is clear from the positioning of the rollers 132 and the roller shaft 124 shown in Fig. 3 of Foster et al. Thus, there are reaction forces applied to the shaft 124 at the two contact points illustrated in Fig. 5b. Two contact points are disclosed in Foster et al. from which vectors and perpendicular directions can be determined.

Also, claim 1 of the instant application recites, "the bearing supports the conveyance roller so as to locate a direction perpendicular to a line coupling the two contact portions within **a range** of vector directions of **varying exertion forces** exerted on the bearing when the conveyance roller is stopped and when the conveyance roller is rotating." (emphasis added). In other words, this recitation in claim 1 **does not** set forth any specific range of vector directions, nor does this recitation set forth any specific range of exertion forces (e.g., 2-4 lbf). As such, applicant has not provided any feature that distinguishes applicant's bearing from that of Foster et al. It is the examiner's position that the bearing (Fig. 5b) of Foster et al. acts to support the conveyance roller (128) so as to locate a direction perpendicular to a line coupling the two contact portions (Fig. 5b) within some range **(a range)** of vector directions of **varying** exertion forces exerted on the bearing when the conveyance roller (128) is stopped and when the conveyance roller is rotating, as set forth in claim 1. Applicant has not

distinguished the performance of the bearing of the instant application from that of the bearing of the Foster et al. patent, e.g., by setting a specific range of vector directions. Foster et al. was not relied upon to reject claims 7 and 10.

Next applicant argues that

> Foster et al. also does not disclose or suggest at least that a direction perpendicular to a line coupling two contact portions is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller, to correspond with the combined vector of an exerting force at a state of stopping and at an exerting force at a state of starting the conveyance roller, as is recited in independent Claim 27.

Claim 27 recites, "a direction perpendicular to a line coupling the two contact portions is located, in an **arbitrary cross-section** perpendicular to the axial direction of the conveyance roller, to correspond with a combined vector of an exerting force at a state of stopping and an exerting force at a state of starting the conveyance roller." In other words, this recitation in claim 27 does not provide any specific cross-section, nor does this recitation provide any limitations on how there is correspondence with the combined vector. As such, applicant has not provided any feature that distinguishes applicant's bearing from that of Foster et al. It is the examiner's position that the conveyance roller (including 126a and 128) of Foster et al. will operate in the bearing (Fig. 5b) such that a direction perpendicular to a line coupling the two contact portions (Fig. 5b) is located, in some **(an arbitrary)** cross-section perpendicular to the axial direction of the conveyance roller (including 126a and 128), to correspond with a combined vector of an exerting force at a state of stopping and an exerting force at a state of starting the conveyance roller (including 126a and 128), as set forth in claim 27.

Then, applicant argues

> Furthermore, Foster et al. does not disclose or suggest at least that a direction perpendicular to a line coupling the two contact portions is located, in an arbitrary cross-section perpendicular to the axial direction of the conveyance roller (or bearing), within a range of vector directions of varying exertion forces exerted on the bearing when the conveyance roller is stopped and when the conveyance roller is rotating, as is recited in independent Claims 17, 20 and 23.

Claim 17 recites, "a direction perpendicular to a line coupling the two contact portions is located, in an **arbitrary cross-section** perpendicular to the axial direction of the conveyance roller, within **a range** of vector directions of **varying exertion forces** exerted on the bearing when the conveyance roller is stopped and when the conveyance roller is rotating." Again, this recitation **does not** set forth any specific cross-section, nor does this recitation set forth a specific range of vector directions. Also, this recitation **does not** set forth a range of exertion forces. Thus, applicant has not set forth any feature that distinguishes applicant's bearing from that of the Foster et al. patent, e.g. a specific range of vector directions. It is the examiner's position that conveyance roller (including 126a and 128) and the bearing (Fig. 5b) of Foster et al. will operate such that a direction perpendicular to a line coupling the two contact portions (Fig. 5B) is located, in some **(an arbitrary)** cross-section perpendicular to the axial direction of the conveyance roller (including 126a and 128), within some range **(a range)** of vector directions of varying exertion forces exerted on the bearing (Fig. 5B) when the conveyance roller (including 126a and 128) is stopped and when the conveyance roller (including 126a and 128) is rotating, as set forth in claim 17. The Foster et al. patent was not relied upon to reject claims 20 and 23.

Next, applicant argues that

> The image recording apparatus of Hiramatsu includes a conveying roller 14 and a pinch roller 21. In Figure 3, conveying roller 14 is rotatably supported by a bearing 20, which supports roller shaft portion 14a. Shaft portion 14a is stabilized to be in tangential contact with two bearing arc portions 20a of bearing 20 at contact lines 20c. However, Applicant submits that Hiramatsu does not describe any change in direction of forces exerted on the bearing, nor is there any discussion of a direction perpendicular to a line coupling the two contact portions. Hiramatsu is also not believed to disclose or suggest the features recited in the independent claims noted above as being deficient in Foster et al.

As noted above, claims 1, 17 and 27 of the instant application do not set forth any specific range of vector directions, do not set forth any specific range of exertion forces, and do not set forth any specific cross-section. Similarly, claims 7 and 10 of the instant application do not set forth any specific range of vector directions, and do not set forth any specific range of exertion forces. Thus, applicant has not set forth a feature in the independent claims that distinguishes applicant's chassis and bearing from that of the chassis and bearing disclosed in the Hiramatsu patent. It is the examiner's position that the bearing (20), the chassis (Fig. 1) and the conveyance roller (including 14) of Hiramatsu will operate such that all of the limitations of independent claims 1, 7, 10, 17, 20, 23 and 27 are met.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

06/29/2006

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